

We Claim:

1. A method comprising:
 - providing a performance for presentation during normal playing of the
 - 5 performance with a predetermined normal speed in a predetermined normal direction, the performance including a multitude of frames;
 - storing the performance on a storage medium;
 - reading portions of the performance from the storage medium;
 - selecting trick play clips of the stored performance for playing in a trick play
 - 10 mode, portions of the performance between the trick play clips being defined as fast skim clips for skimming in the trick play mode, multiple trick play clips and fast skim clips each containing multiple subsequent frames, the trick play clips alternating with the fast skim clips in the normal direction of play; and
 - playing portions of the performance in the trick play mode, the trick play mode
 - 15 including playing the trick play clips and skimming the fast skim clips between the trick play clips, the skimming being either skipping of fast skim clips or playing fast skim clips at a substantially higher speed than the trick play clips in the trick play mode, the speed of the playing and skimming in the trick play mode being substantially different than the normal speed, the trick play clips being sufficiently long and being presented at a
 - 20 sufficiently low speed so that the content of the trick play clips can be understood by a human audience.
2. The method of claim 1 in which in the trick play mode, the trick play clips are played at the normal speed.

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3. The method of claim 1 in which in the trick play mode, the trick play clips are played at a faster than normal speed which can still be understood by the audience.

4. The method of claim 1 in which in the trick play mode, the fast skim clips are played at least twice as fast as the trick play clips.

5. The method of claim 1 in which: the performance includes video, the frames include video frames, and the trick play clips and fast skim clips include video clips; and in the trick play mode the trick play video clips are presented at less than about 8 times the normal speed so the video clips can be understood by the audience.

6. The method of claim 5 in which when one of the trick play video clips is played in the trick play mode, multiple video frames of the trick play video clip are skipped and multiple other video frames of the trick play video clip are played.

7. The method of claim 5 in which the trick play video clips are selected during an authoring process prior to storing the performance so that the trick play video clips contain logically related portions of video.

8. The method of claim 1 in which: the performance includes audio, the frames include audio frames, and the trick play clips and fast skim clips each include audio clips; in the trick play mode the fast skim audio clips are skipped; for multiple trick play audio clips, none of the frames of the trick play audio clip are skipped in the trick play mode; in the trick play mode, the trick play audio clips are played less than about 3 times the normal speed so the audio clips can be understood by the audience.

9. The method of claim 7 in which the trick play audio clips are selected during an authoring process prior to storing the performance so that the trick play clips contain meaningful portions of audio.
- 5 10. The method of claim 7 in which the performance includes video at a normal video speed, and in the trick play mode, the video speed is different than a normal video speed and the video speed is different than the audio speed.
11. The method of claim 10 in which the video speed is less than the normal video
10 speed to provide slow motion trick play mode and the audio speed is substantially normal during the slow motion trick play mode.
12. The method of claim 10 in which the video speed is faster than normal to provide
15 fast motion trick play mode and the audio speed is substantially normal audio during the fast motion trick play mode.
13. The method of claim 10 in which the video direction is the reverse of the normal
20 direction to provide a reverse motion trick play mode and the trick play audio clips are provided in reverse order but the contents of the audio clips are played in the normal direction so the audio clips can be understood during the reverse motion trick play mode.
14. The method of claim 1 in which: the performance is a multimedia performance
and the frames includes frames of at least two types of media and the trick play clips and
fast skim clips each include clips of at least two different types of media; and for each of
25 the at least two types of media, the respective trick play clips for that media are

sufficiently long and presented at a sufficiently low speed that they can be understood by the audience.

15. The method of claim 14 in which the trick play clips start at different positions for the different media.

16. The method of claim 14 in which the performance includes audio and video, the frames include audio frames and video frames, and the trick play clips and fast skim clips include audio clips and video clips.

10 17. The method of claim 16 in which in the trick play mode, the trick play audio clips are presented at less than about 3 times the normal audio speed and the trick play video clips are presented at less than about 8 times the normal video speed.

15 18. The method of claim 16 in which the trick play audio clips and trick play video clips are at the same positions in the performance and both are played at the same multiple of their respective normal speeds in the trick play mode.

19. The method of claim 18 in which the trick play audio clips and trick play video clips are both played at their respective normal speeds.

20. The method of claim 16 in which the trick play audio clips are played at the normal audio speed and the trick play video clips are played at a faster than normal video speed.

25 21. The method of claim 16 in which the trick play audio clips and trick play video clips are both played at a different multiple of their respective normal speeds.

22. The method of claim 21 in which the audio portions are presented at a lower speed above normal speed than the video portions.
- 5 23. The method of claim 1 in which there are trick mode entry points at intervals of multiple frames in the stored performance, and the trick play clips are selected to begin at respective trick mode entry points, but not at every trick mode entry point.
24. The method of claim 23 in which the performance includes video and the stored
10 video is encoded into groups of pictures, and a trick mode entry point is at the beginning of each group of pictures and a trick mode exit point is at the end of every picture.
25. The method of claim 23 in which the positions of trick play clips are determined prior to storing the performance and pointers to the trick play clips are stored an the same
15 storage medium as the performance.
26. The method of claim 25 in which pointers to the trick play clips are stored in a table that is separate from the performance.
- 20 27. The method of claim 1 in which the length of the fast skim clips are more than 2 times the length of the trick play clips, the length being measured in numbers frames.
28. The method of claim 1 in which the length of the trick play clips are user adjustable after storing the performance.
- 25 29. The method of claim 1 in which the length of the fast skim clips are user adjustable after storing the performance.

30. The method of claim 1 in which the speed for playing the trick play clips is user adjustable after storing the performance.

31. A player comprising:

5 means (242, 244) for reading portions of a stored performance from a storage medium, the performance including a multitude of sequential frames for presentation during normal playing of the performance in a predetermined normal direction at a predetermined normal speed, the performance being divided into trick play clips for playing in a trick play mode and other fast skim clips for skimming in the trick play
10 mode; and

means (244, 250, 252) for playing portions of the performance in the trick play mode, the trick play mode including playing trick play clips and skimming fast skim clips between the trick play clips, multiple trick play clips and fast skim clips each containing multiple subsequent frames of the performance, the trick play clips alternating with the
15 fast skim clips in the normal frame presentation order; the skimming being either skipping of fast skim clips or playing fast skim clips at a substantially higher speed than the trick play clips in the trick play mode, the average speed of the playing and skimming in the trick play mode being substantially different than the normal speed, the trick play clips being sufficiently long and being presented at a sufficiently low speed so that the
20 content of the trick play clips can be understood by a human audience.

32. The player of claim 31, further comprising means (246) for selecting the trick play clips and fast skim clips during the playing in the trick play mode.

33. The player of claim 31, in which the stored performance is compressed and the player further comprises means for decompressing the portions of the performance read from the storage medium.
- 5 34. The player of claim 33, in which portions of the fast skim clips are not decompressed during the playing in the trick play mode.
35. The player of claim 31, further comprising means (242, 244) for reading pointers to the trick play clips from the storage medium, the playing of the trick play clips during
10 the trick play mode depending on the pointers.
36. The player of claim 35 in which the reading of portions of the stored performance also depending on the stored pointers.
- 15 37. The player of claim 35 in which the performance is compressed and the player further comprises means (248) for decompressing portions of the performance, and the decompressing depends on the stored pointers to the trick play clips.
38. The player of claim 31 further comprising a play unit for presenting the
20 decompressed portions of the performance to an audience.
39. A recorder comprising:
an input (202) for receiving a performance, the performance including a multitude of sequential frames for presentation during normal playing of the performance in a
25 predetermined normal direction at a predetermined normal speed;
means (206) for selecting trick play clips of the stored performance for playing in a trick play mode, portions of the performance between the trick play clips being defined

as fast skim clips for skimming in the trick play mode, multiple trick play clips and fast skim clips each containing multiple sequential frames, the trick play clips alternating with the fast skim clips in the normal frame presentation order, the trick play mode including playing the trick play clips and skimming the fast skim clips between the trick play clips, the skimming being either skipping of fast skim clips or playing fast skim clips at a substantially higher speed than the trick play clips in the trick play mode, the average speed of the playing and skimming in the trick play mode being substantially different than the normal speed, the trick play clips being sufficiently long and being presented at a sufficiently low speed so that the content of the trick play clips can be understood by a human audience;

means (210, 212) for storing the performance on a storage medium and storing indications of the positions of the trick play clips on the storage medium, the indications of the positions of the trick play clips defining which portions of the performance are trick play clips and which portions of the performance are fast skip clips.

40. The recorder of claim 39 in which the storage medium is a tape and recorder is a tape recorder and the indications of the positions of the trick play clips are pointers that are stored on the tape at a position that is different than the position that the performance is stored on the tape.

41. A method comprising:
providing a performance including a multitude of sequential frames for presentation during normal playing of the performance in a predetermined normal direction at a predetermined normal speed;

selecting trick play clips of the stored performance for playing in a trick play mode, portions of the performance between the trick play clips being defined as fast skim clips for skimming in the trick play mode, multiple trick play clips and fast skim clips each containing multiple sequential frames, the trick play clips alternating with the fast skim clips in the normal frame presentation order, the trick play clips being sufficiently long so that the content of the trick play clips can be understood by a human audience when playing the trick play clips and skimming the fast skim clips between the trick play clips, the skimming being either skipping of fast skim clips or playing fast skim clips at a substantially higher speed than the trick play clips in the trick play mode, the average speed of the playing and skimming in the trick play mode being substantially faster than the normal speed;

storing the performance on a storage medium along with indications of the positions of the trick play clips which define which portions of the performance are trick play clips and which portions of the performance are fast skip clips.

42. A signal in a physical transmission medium, comprising:

a performance (123, 124, 125) including a multitude of sequential frames for presentation during normal playing of the performance in a predetermined normal frame presentation order at a predetermined normal speed, the performance including trick play clips for playing in a trick play mode, portions of the performance between the trick play clips being defined as fast skim clips for skimming in the trick play mode, multiple trick play clips and fast skim clips each containing multiple sequential frames, the trick play clips alternating with the fast skim clips in the normal frame presentation order, the trick play clips being sufficiently long so that the content of the trick play clips can be understood by a human audience when playing the trick play clips and skimming the fast

skim clips between the trick play clips, when the skimming is either skipping of fast skim clips or playing fast skim clips at a substantially higher speed than the trick play clips in the trick play mode, the average speed of the playing and skimming in the trick play mode being substantially faster than the normal speed; and

- 5 indications (122) of the positions of the trick play clips which define which portions of the performance are trick play clips and which portions of the performance are fast skip clips.

43. A record carrier containing the signal of claim 41.

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44. A digital video cassette player, comprising:

an opening (271) for receiving a video cassette containing a video tape;

a rotating head (274) for reading frames of a digital video performance from

slanted tracks across the video tape, the video performance being encoded based on

- 15 groups of pictures (GOPs), the tracks having the beginning of a GOP at the start of the track;

a tape drive mechanism (276) for moving the video tape longitudinally at the rotating head;

a controller (277) for:

- 20 controlling the speed of rotation of the head and the linear speed of the tape in synchronization to provide a normal speed of reading consecutive frames from one of the tracks and a different trick play mode speed for reading consecutive frames from one of the tracks at a different speed; and

controlling the playing of portions of the performance in a trick play mode in

- 25 which multiple frames in a first portion of the track beginning at the start of the track are

played and multiple frames of a second portion of the track ending at the end of the track are skimmed, the second portion being as long or longer than the first portion, the skimming being skipping or playing at a faster rate than the first portion is played, and the speed at which frames are played is different than the speed at which frames are read

5 from the tape.

45. The player of claim 44 in which:

all the video frames of the first portion are played and non of the video frames of

10 the second portion are played in the trick play mode;

the video frames are played at a speed that is sufficiently slow that a video performance of the first portion can be understood by an audience in the trick play mode;

the performance includes audio frames and the audio frames are played at a speed that is sufficiently slow that an audio performance of the first portion can be understood

15 by an audience in the trick play mode.

46. The player of claim 44 in which: the performance includes audio frames; and in the trick play mode all the video frames are read and played at a faster than normal rate and all the audio frames of the first portion are played at the normal rate and all the audio

20 frames of the second portion are skipped.

47. A method comprising:

providing an encoded multimedia performance including a first media and a second media, each media including a multitude of sequential frames for presentation

25 during normal playing of the performance in a predetermined normal frame presentation

order at a predetermined normal speed, the frames being intermixed in approximately the order in which they need to be decoded;

storing the encoded performance on a storage medium;

reading portions of the performance from the storage medium;

- 5 subdividing the performance into clips of multiple frames for playing in a trick play mode, the clips having a normal clip order in the same direction as the normal frame order;

decoding the frames of the clips;

- 10 playing the frames of the clips in the trick play mode, in which the frames of a first media are played at a first multiple of the respective normal speed for that media and the frames of a second media are played at a different second multiple of the respective normal speed for that media, the trick play clips being sufficiently long and being presented at a sufficiently low speed so that the content of the trick play clips can be understood by a human audience.

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48. The method of claim 47 in which the first media is video and the second media is audio; and in the trick play mode, the clips are presented in reverse order of the clips, and the video frames are presented in reverse order, and the audio frames are presented in forward order.

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49. The method of claim 47 in which the first media is video and the second media is audio; and in the trick play mode, the video is presented in slow motion and the audio is presented at normal speed.

50. The method of claim 47 in which the clips are arranged with a trick mode entry point for a media at the first respective frame of that media in the clip.